

rinsing the developing solution from the portion of the resist film by a rinsing liquid to which ultrasonic vibration is applied.

☐ Please add the following new claims 5-32.

~~2.5.~~ The method of Claim 1, wherein the ultrasonic vibration ranges from 40 kHz to 50 kHz.

~~2.3.~~ The method according to claim 1, wherein the developing solution is an alkaline developing solution.

~~3.4.~~ The method according to claim ~~6~~, wherein the alkaline developing solution includes tetramethylammonium hydroxide.

~~4.5.~~ The method according to claim 1, further comprising:  
exposing the resist film to light passing through a mask before supplying the developing solution.

~~5.6.~~ The method according to claim ~~8~~, further comprising:  
baking the resist film at a first temperature before exposing the resist film to the light; and

baking the resist film at a second temperature after exposing the resist film to the light, wherein the second temperature is different from the first temperature.

~~6.7.~~ The method according to claim ~~9~~, wherein the second temperature is lower than the first temperature.

~~7.8.~~ The method according to claim 1, further comprising:

irradiating the resist film with an electron beam using an electron beam lithography technique before supplying the developing solution on the resist film.

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The method according to claim 11, further comprising:

baking the resist film at a first temperature before irradiating the resist film with the electron beam; and

baking the resist film at a second temperature after irradiating the resist film with the electron beam, wherein the second temperature is different from the first temperature.

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The method according to claim 12, wherein the second temperature is lower than the first temperature.

14. The method according to claim 1, wherein the semiconductor substrate and the resist film formed thereon are submerged in a rinsing container, the rinsing liquid being supplied in the rinsing container.

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The method according to claim 1, wherein the ultrasonic vibration is applied to the developing solution.

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The method according to claim 1, wherein the rinsing liquid is pure water.

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A method for fabricating a semiconductor device, comprising:  
 preparing a semiconductor substrate;  
 forming a resist film on the semiconductor substrate;  
 supplying a developing solution on the resist film for patterning the resist film,  
 whereby a patterned resist film is formed on the semiconductor substrate;  
 providing a rinsing liquid on the semiconductor substrate on which the patterned resist film is formed; and  
 applying ultrasonic vibration to the rinsing liquid.

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The method according to claim 17, wherein the ultrasonic vibration ranges from 40 kHz to 50 kHz.

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13. <sup>15</sup>~~19~~. The method according to claim <sup>9</sup>~~17~~, wherein the developing solution is an alkaline developing solution.

14. <sup>13</sup>~~16~~. The method according to claim <sup>13</sup>~~19~~, wherein the alkaline developing solution includes tetramethylammonium hydroxide.

15. <sup>9</sup>~~17~~. The method according to claim <sup>9</sup>~~17~~, further comprising:  
exposing the resist film to light passing through a mask before supplying the developing solution.

16. <sup>15</sup>~~18~~. The method according to claim <sup>15</sup>~~21~~, further comprising:  
baking the resist film at a first temperature before exposing the resist film to the light; and

baking the resist film at a second temperature after exposing the resist film to the light, wherein the second temperature is different from the first temperature.

17. <sup>18</sup>~~19~~. The method according to claim <sup>18</sup>~~22~~, wherein the second temperature is lower than the first temperature.

18. <sup>9</sup>~~20~~. The method according to claim <sup>9</sup>~~17~~, further comprising:  
irradiating the resist film with an electron beam using an electron beam lithography technique before supplying the developing solution on the resist film.

19. <sup>18</sup>~~21~~. The method according to claim <sup>18</sup>~~24~~, further comprising:  
baking the resist film at a first temperature before irradiating the resist film with the electron beam; and

baking the resist film at a second temperature after irradiating the resist film with the electron beam, wherein the second temperature is different from the first temperature.

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The method according to claim 25, wherein the second temperature is lower than the first temperature.

27. The method according to claim 17, wherein the semiconductor substrate and the resist film formed thereon are submerged in a rinsing container, the rinsing liquid being supplied in the rinsing container.

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The method according to claim 17, wherein the ultrasonic vibration is applied to the developing solution.

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29. The method according to claim 17, wherein the rinsing liquid is pure water.

30. A method of forming a resist pattern on a substrate, comprising:  
forming a resist film on the substrate;  
supplying a developing solution onto the resist film;  
submerging the resist film formed on the substrate in a rinsing liquid; and  
applying ultrasonic vibration to the rinsing liquid to rinse the developing solution from the resist film submerged in the rinsing liquid.

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A method of forming a resist pattern on a substrate, comprising:  
forming a resist film on the substrate;  
supplying a developing solution onto the resist film;  
providing a rinsing liquid onto the substrate so as to cover the resist film; and  
applying ultrasonic vibration to the rinsing liquid to rinse the developing solution from the resist film submerged in the rinsing liquid.

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A method of forming a resist pattern on a substrate, comprising:  
forming a resist film on the substrate;  
supplying a developing solution onto the resist film;  
supplying the resist film formed on the substrate with a rinsing liquid; and  
applying ultrasonic vibration to the rinsing liquid to rinse the developing solution  
from the resist film submerged in the rinsing liquid.--

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RESIST